MR. BERNHARDT'S VENTILATING "GEM."

TO THE EDITOR OF THE BUILDER.

SIR,—I refrained from making any remark last week upon the subject of Mr. Bernhardt's letter (inserted in your twentieth Number, p. 347), because I wished to see whether the paper Mr. B. refers me to appeared in your last; the paper not being inserted, I beg to offer a few remarks on the subject of Mr. B.'s pretensions, on which subject I do not entertain a doubt that I shall be able to convince your readers, including even Mr. B. himself, that he is *at the best* a very mistaken man in his notions, "that he can warm and ventilate a building better than any man existing, either here or on the Continent" (see his letter, No. 14, p. 167); on the contrary, I will shew that the "forty years'" study of that gentleman "in every branch of natural philosophy" (No. 20, p. 247), aided by his ardent desire to distinguish himself in this branch of science, has been completely thrown away, as I am able, notwithstanding my alleged incompetency to judge such questions (see Mr. B., No. 20, p. 248), to produce much greater effects in warming and ventilation, with the same amount of fuel, than Mr. B., by his own shewing, can; I will not presume so far as to say that nothing can go beyond the system which I advocate, but this I will say, that it throws the "GEM" completely in the shade, as we shall presently see.

In his last, Mr. Bernhardt furnishes something like data to compare and reason upon, by giving us a case (No. 20, p. 247), where his system was applied, with a calculation of the effect produced, and asks me whether I consider it economical, where 1,500,000 cubic feet of air passed in twenty-four hours through a space equal to 55,000 cubic feet, at an expense of fuel of 3½ bushels of coke or coal, the said air being raised from (I assume) 30°, and that in the space being maintained at 65°, would I consider that economical? I answer no, for I will undertake to produce, *with the same amount of fuel*, eight times that effect; and I will undertake to shew any the humblest mechanic, how he may do the same thing after a study of less than "*forty*" *hours*, and without any previous knowledge of "natural philosophy" whatever; and I do hope, for the benefit of their employers, that practical men will give this much-neglected subject more of their attention.

We can therefore spare Mr. Bernhardt the trouble of explaining his system, if the above is all the effect he is able to produce with the above amount of fuel. With regard to the cost of erecting the apparatus in the first instance, an important item to be considered, I can state that in a large building where Mr. Bernhardt was employed to put up his patent machinery to warm and ventilate, he charged 400*l.*; on the system I advocate, 250*l.* would have sufficed, and would have been worked in this instance even more economically than the rate before stated.

There is a statement of Mr. B.'s that appears to me, too, to require some explanation; he states, that his plan of warming and ventilation has been made the subject of a patent, and yet states, that his plan is a *secret* (No. 20, p. 248, and No. 16, p. 200), and, moreover, that that was the reason why he refused to give full information of his system, to the committee of inquiry, &c. in 1836. Now, Sir, that which has become the subject of a patent, cannot be a secret; for the main condition on which a patent is granted is, "that he (the patentee) shall disclose *his secret* fully and without any reservation" (see Judge Buller, in Rex. *v.* Arkwright) in his specification; if Mr. B. has done this, there is no secret; if he has not, he has defrauded the public, and the patent is void in law.

I have before stated my opinion, that in cases like the present, the evidence even of distinguished men of science ought not to be accepted as a proof of such pretensions without principles and facts, because we are furnished with no means of judging whether they may not have been deceived, as we know very many have been; for example, there is Mr. Perkins's plan of warming and ventilating by the circulation of hot water in pipes; many large buildings have been *disfigured* on this plan, and its advocates tell us nothing can be more perfect, and the scientific gents. give their testimony as to the *effects* produced; Mr. Richardson's book which describes the application of it to many important buildings, among which are the British Museum, the Register Office at Edinburgh, the new Justiciary court at the same place, Mr. Caddel's also at Edinburgh, the Soane Museum, London, and some others. All are said to give the greatest satisfaction, but among these testimonials there is one from a gentleman, whose opinion upon points he understands all will defer to, I mean Dr. Andrew Combe, of Edinburgh. I will place his opinion on the hot-water plan in juxta-position with that of Dr. Grant, or Mr. Bernhardt's (BUILDER, No. 16, p. 200). Dr. Combe says, "I was not less struck with the total absence of the empyreumatic odour and parched *dryness*, so generally characteristic of heated air" (Richardson on Ventilation, p. 40, Weale 1837, and in Dr. Combe's work on preservation of health, Chapter on Ventilation). Now for Dr. Grant, "the feeling of warmth and *dryness* is particularly agreeable, and from your (Mr. Bernhardt's) simple, but excellent plan, &c. &c." But as Mr. Bernhardt appears to have a great veneration for the testimony of philosophical professors, I will just add the testimony of one who I am inclined to think all will admit to be deserving of attention, from his great attainments in, and knowledge of, practical subjects of this nature, I mean Dr. Ure. About the year 1836, Mr. Bernhardt was employed to warm and *ventilate* the New Custom-house; in a short time the clerks and others employed there, began to complain of a general loss of health, and Dr. Ure was employed to report on the subject to a committee; which report will be found in vol. xxvii. *Mechanics' Magazine*; he touched on the subject again in a paper read before the Royal Society, June 16th, 1836 (see *Mechanics' Magazine*, vol. xxvii. p. 12); well, let us see what Dr. Ure says of the "*agreeable dryness*" which seems to characterize Mr. Bernhardt's system. He says, "The leading characteristics of the air in these two rooms is its *dryness* and disagreeable smell." * * similar conditions, though on a smaller scale, exist in what is called the bell or cockle apparatus for heating the long-room and examiner's apartment in the Custom-house; the effects *of the dryness* are thus described: "A sense of tension, of fulness in the head, with occasional flushings of the countenance, throbbing of the temples, *vertigo*, &c. &c.; the sensations in the head occasionally rise to such a height, notwithstanding the most temperate regimen of life, as to require cupping, and at other times depletory remedies;" and, adds he, "the sameness of the above ailments, in upwards of one hundred gentlemen, at very various periods of life, and of various temperaments, indicates clearly a sameness of cause." I can produce more cases similar to this if required, but I think this pretty conclusive; and I think, Sir, your readers, will readily see why Mr. Bernhardt had so little to do with the committee appointed to inquire into the best mode of warming and ventilating the New Houses of Parliament in 1836, and will congratulate the members of the legislature, that the experiment was tried on a more subordinate part of the public service. I have now done with Mr. Bernhardt and his "*Gem*," and trust that he, as well as your other readers, will give me credit for being influenced by no personal motive, having never seen or spoken to, or had any communication whatever with him on any occasion; but being desirous that this subject should be better understood than it now is, I throw in my mite to the treasury.

I will, as my time allows, send you a description of the principles and practice of warming and ventilating large buildings efficiently and economically, inviting discussion from the "natural philosophers."

I remain, Sir, respectfully,

GEORGE SPENCER, Engineer Draftsman.

5, Hungerford-street, Charing Cross.

4th July, 1843.

Miscellanea.

BUILDING MEMORABILIA.—We recollect to have heard it noted that after the destruction of the Brunswick theatre by the falling in of the iron roof, and when Captain Smith (familiarly known by the *soubriquet* of "Boatswain Smith"), thought to purge the site of its abomination by building a chapel upon it, instituting prayers to be said morning and evening by the workmen before and at the conclusion of their labours. Some one passing by discovered an Irish labourer of his acquaintance kneeling down at prayers, with whom he chose to remonstrate, observing that he was surprised to find him joining in prayers with heretics. Pat, it is said, scratched his head for a moment, which elicited this reply, "Arrah, honey, be quiet with you now; it's easier work than claning bricks."

Near to Harrow-on-the-Hill stands a house memorable for its association with an event tending to shew in the most forcible manner the folly of all that provision for our own security which fatalism and its doctrines would lead us into. A gentleman had lost his life by falling down a flight of stairs, upon which his surviving friend, about to build, remarked that he would take pretty good precautions against a similar accident, and accordingly planned and erected his dwelling of one story only, without step or stair about it. The house-warming came, and a merry-making, when lo! in the height of his mirth, and, as one may conceive, in the flush of his fancied security, leaping over a hedge or fence (the boundary of his garden), one stumble brought him to the ground, and, like the friend he had resolved not to follow, there he lay with a broken neck!

Through the munificence of his Grace the Duke of Newcastle, a neat and elegant church will, in all probability, be erected during the summer in the rural and pleasant village of Bothamsall, situate in the centre of what is called the "Dukeries," on the outskirts of both Clumber and Thoresby Parks.—*Hull Packet*.

The Marchioness of Bath is about to rebuild the parish church of Horningsham, near Warminster, which is now, with the exception of the tower, a heap of ruins, on the same site, but upon a much larger scale, at an outlay of about 3,000*l.*

A stout Irish labourer undertook one day for a wager to carry a brother hodman and Milesian to the top of a long aplicing of ladders, and land him safely on the uppermost scaffold, as he would a load of bricks. This he accomplished, though not without considerable difficulty. A colloquy ensued at the top of the scaffold, Patrick, the bearer, rejoicing in the performance of his feat, when he who was the loser of the wager, with the most unconscious simplicity replied, "Fakes, now, it's true you've won, my jewel, but I was in grate hopes of the contrary at the seventh story; I thought to have given you one shog of the hod and to have settled it, but I couldn't find in my heart to chate you of a bargin."

Poor Whitnell, the architect of the Brunswick theatre, never recovered, or enjoyed confidence in himself, after the catastrophe of the falling in of the roof. He had great natural talent and genius; he was an architect born, but wanted the "*tact*" to throw blame or responsibility on others, as it was in this case all fell upon himself. A friend of ours conversing with him a little while before his death, and observing his depression of spirits, tried to rally him out of it—"You should not suffer this calamity," said our friend, "to bear you down, it has no right, it is not just, it is not reasonable that it should do so." The broken-hearted man's significant reply was "Aye—but it does." In a few months after he was laid in his grave.

The numerous workmen employed in the erection of the College have not been forgotten in the rejoicings consequent on its auspicious opening. Last Friday evening they were regaled by the Directors with an excellent dinner of roast beef, plum pudding, &c., in the large School Room, as a reward for their uniform good conduct during the period of its execution. Just before dinner commenced, they were addressed in an excellent speech by Fenton Hort, Esq. Mr. H. said he and his brother Directors were much gratified with the opportunity of demonstrating their high opinion of Mr. Davis, the contractor, as a scientific, conscientious builder. The Directors having left the room amidst the acclamations of the workmen, Mr. Davis was called upon to preside; he was assisted by the masters of the different branches, and after appropriate grace had been sung, they proceeded to enjoy themselves on the good provision laid before them. After all had been well regaled, and the cloth was removed, Mr. Davis rose and made a very appropriate speech, in which he alluded to the generous and handsome manner in which the Directors had shewn their good opinion of the prudence with which the workmen had conducted themselves during the progress of the building; he then feelingly alluded to the good cause the Directors had in view in erecting the noble edifice; after some other seasonable remarks, he heartily wished them success in their new undertaking. The health of the Directors was then drank with three times three and the Kentish fire. In the course of the evening, Mr. Parsonage and Mr. Greenland also made appropriate speeches, and joined in expressing their thanks to the workmen as a body of steady, sober, industrious, well behaved men; adding that they had never during their experience met with any more deserving of their praise. It was also proposed and agreed upon by the different masters, that a dinner should be given at their expense the following evening, which was accordingly done. On each occasion, great satisfaction was manifested by the men, who numbered about one hundred and twenty.—*Cheltenham Journal*.

On Saturday last a small iron steam-boat arrived in Stirling, on its passage from Glasgow to Loch Katrine, on which it is intended to ply during the summer months. It is only about six tons in weight, engines and all, has no deck, nor any part of it covered in except the engine, which is of six-horse power.

The Queen Dowager has contributed 20*l.* to the fund for the building of a parsonage-house and schools in connection with St. Peter's, Coventry, and has also given 10*l.* for the erection of an infant school at Erdington, Warwickshire.

Above *fifty thousand* labourers are now employed in constructing a railway from St. Petersburgh to Moscow, nearly 500 miles, which is expected to be completed in two years.

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